

The following is a list of the claims currently pending:

Claims

1. (Original) A land grid array (LGA) package for clamping to an interposer socket on a printed circuit board, the LGA package comprising:
 - a substrate;
 - a die attached to an upper surface of the substrate;
 - a lid attached to an upper surface of the die; and
 - a substrate reinforcement member attached to the upper surface of the substrate and separated from the lid.
2. (Original) The LGA package of claim 1, wherein the substrate reinforcement member comprises a ring attached to the upper surface of the substrate around the periphery of the lid.
3. (Original) The LGA package of claim 1, wherein the substrate reinforcement member comprises at least one longitudinal bar.
4. (Original) The LGA package of claim 1, wherein the substrate reinforcement member comprises one of Invar and SiC.
5. (Original) The LGA package of claim 1, wherein the lid comprises one of AlSiC-9, CuW, and SiC.

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6. (Original) The LGA package of claim 1, wherein a coefficient of thermal expansion of the substrate reinforcement member is substantially equal to a coefficient of thermal expansion of the substrate.
7. (Original) The LGA package of claim 1, wherein coefficients of thermal expansion of the substrate and the substrate reinforcement member are matched to reduce mechanical stress in the substrate and in an adhesive that attaches the lid to the upper surface of the die.
8. (Original) The LGA package of claim 1, wherein the substrate reinforcement member is parallel and adjacent to sides of the lid.
9. (Original) The LGA package of claim 1, wherein the substrate reinforcement member comprises four separate bars.
10. (Original) The LGA package of claim 1, wherein the substrate reinforcement member has an elongated bar shape.
11. (Withdrawn) In a land grid array (LGA) package comprising a substrate, a die attached to an upper surface of the substrate, and a lid attached to an upper surface of the die, a method for reducing the mechanical stress in the LGA package, the method comprising reinforcing the substrate in the LGA package by attaching a substrate support member to the upper surface of the substrate.

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12. (Withdrawn) The method of claim 11, wherein the reinforcing the substrate in the LGA package further comprises matching a coefficient of thermal expansion of the substrate with a coefficient of thermal expansion of the substrate support member.

13. (Withdrawn) The method of claim 11, further comprising providing the substrate support member separated from the lid.

14. (Withdrawn) The method of claim 11, further comprising positioning the substrate support member around both the die and the lid.

15. (Withdrawn) The method of claim 11, further comprising providing the substrate support member as a continuous member extending around all sides of the lid.

16. (Original) A land grid array (LGA) package comprising:
a substrate;
a die attached to a surface of the substrate;
a lid attached to a surface of the die; and
a substrate reinforcement member attached to a surface of the substrate and being adapted to reduce mechanical stress in the substrate.

17. (Original) The LGA package of claim 16, wherein the substrate reinforcement member has a rectangular cross section.

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18. (Original) The LGA package of claim 16, wherein the lid is adapted to move downwardly to accommodate bending of the substrate.

19. (Original) The LGA package of claim 16, wherein the substrate reinforcement member extends around a periphery of the die.

20. (Original) The LGA package of claim 16, wherein the substrate reinforcement member comprises two separate members that are adjacent to and separate from the lid.

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